Vibro Sifter — Comprehensive Guide to Fabon Pharmatech Pvt Ltd's Precision Screening Solution

Introduction

In modern pharmaceutical manufacturing and allied industries such as food, chemicals, nutraceuticals, and cosmetics, **screening and particle size control** are foundational to consistent product quality, regulatory compliance, and efficient downstream processing. Among the essential machines for handling powders and granules is the **Vibro Sifter** — also known as a **vibrating sieve** or **vibratory screen** — which plays a critical role in separating, grading, and removing unwanted particles from bulk materials.

Fabon Pharmatech Pvt Ltd, headquartered in **Nashik, Maharashtra, India**, is a trusted manufacturer and supplier of pharmaceutical processing equipment, including high-quality Vibro Sifters designed to meet strict hygiene and performance standards required in regulated industries. Their machines aim to deliver **precise particle size distribution, high screening efficiency, dust-free operation, and easy cleanability** to support robust manufacturing processes. (Fabon Pharma)

This article provides an in-depth exploration of Vibro Sifters — covering design principles, technical specifications, operational features, industry applications, benefits, compliance considerations, selection criteria, and real-world usage — with a focus on Fabon Pharmatech's offerings.

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1. What Is a Vibro Sifter?

1.1 Definition and Core Function

A **Vibro Sifter** is a mechanical screening machine that separates material based on **particle size** through the use of high-frequency **vibrations**. It consists of one or more sieving decks fitted with mesh screens, through which materials are fed and progressively separated. Smaller particles pass through the screen mesh, while larger particles or unwanted lumps remain on top and are either recirculated or discharged separately. (Fabon Pharma)

Often called a **vibrating sieve, vibratory separator**, or **Vibro Screen**, this device is crucial whenever a **uniform particle size distribution** or removal of agglomerates is needed — such as before tableting, encapsulation, or packaging in pharmaceutical production. (Fabon Pharma)

1.2 Why Screening Matters

In powder processing, particle size influences **flow properties, compressibility, blend uniformity, dissolution rate, and bioavailability** — all of which directly impact the **quality, efficacy, and performance** of finished products. A Vibro Sifter ensures that:

- Oversized particles and foreign matter are **removed before further processing**
- Fine particles are **distributed uniformly**
- Product quality is **consistent across batches**
- Downstream equipment such as tablet presses, capsule fillers, and coating machines operate with **minimal interruptions**

Thus, Vibro Sifters are key to maintaining **process control and quality assurance** in regulated manufacturing environments. (Fabon Pharma)

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2. Fabon Pharmatech Pvt Ltd — Company Overview

Fabon Pharmatech Pvt Ltd is a **pharmaceutical machinery manufacturer located in Nashik, Maharashtra, India**, specializing in a wide range of processing equipment that supports drug manufacturing and allied sectors. The company's portfolio includes mixers, blenders, granulators, mills, coating machines, material transfer systems, and **Vibro Sifters** designed to meet **GMP, cGMP, and regulatory compliance standards**. (Fabon Pharma)

Founded with a commitment to quality, innovation, and customer support, Fabon Pharmatech emphasizes **stainless-steel construction, easy sanitization, reliability, and customizable solutions** to match diverse production needs across pharmaceuticals, food, chemicals, nutraceuticals, and cosmetics. (Fabon Pharma)

For full product details and specifications, their official product listing can be found on: **https://fabon-pharma.com/product/vibro-sifter/**. (Fabon Pharma)

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3. Engineering & Design Features

3.1 Construction Material & Compliance

Fabon's Vibro Sifters are built for high performance under stringent hygiene and regulatory standards:

- **Contact parts:** Stainless Steel **SS 316L** — offering excellent **corrosion resistance, cleanability, and hygienic compliance** for pharmaceutical applications.
- **Non-contact parts:** Stainless Steel **SS 304** — providing structural strength and cost efficiency.
- **Surface finish:** Mirror or matte polished surfaces to **prevent contamination, facilitate cleaning, and support regulatory audits**.
- **Gaskets and seals:** Silicone or PTFE gaskets ensure **airtight sealing** to prevent cross-contamination and dust leakage during operation. (Fabon Pharma)

This design supports **GMP, cGMP, and FDA compliance**, making the Vibro Sifter suitable for regulated manufacturing environments. (Fabon Pharma)

3.2 Vibratory Motor & Drive System

The core of a Vibro Sifter's operation is its **vibratory motor and drive mechanism**:

- **Motor power:** Typically ranges from 0.25 HP up to 3 HP, depending on capacity and application requirements.
- **Vibration frequency:** Adjustable **1400–2800 RPM** via a **Variable Frequency Drive (VFD)** to optimize vibration intensity and material flow.
- **Eccentric weight system:** Counterweights enable precise control over vibration amplitude and flow patterns for effective screening.
- **Low noise operation:** Designed to operate below ~75 dB for safe factory environments. (Fabon Pharma)

This system ensures **consistent energy transfer to the screening surface** for efficient separation with minimal downtime for maintenance. (Fabon Pharma)

3.3 Multi-Deck Screen Assembly

Fabon's Vibro Sifters can be configured with **single, double, or triple deck screens**, enabling:

- **Single deck:** Basic separation for coarse grading.
- **Double deck:** Two levels of screening for intermediate separation.
- **Triple deck:** Advanced grading for multiple size fractions in one pass.

Screen mesh sizes range from **8 mesh to 325 mesh**, customizable to the product's characteristics and regulatory requirements. Quick-release clamping systems allow **rapid screen replacement and easy cleaning** — essential in multi-product facilities. (Fabon Pharma)

3.4 Feed & Discharge System

A well-designed feed and discharge system helps maintain throughput and minimize powder escape:

- **Top feed hopper:** Ensures controlled and continuous material feed into the screen.
- **Bottom discharge chute:** Smoothly collects and directs screened material into containers or downstream equipment.
- **Dust-free operation:** Can be integrated with vacuum or enclosed transfer systems to further reduce powder escape and contamination. (Fabon Pharma)

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4. How a Vibro Sifter Works

The working principle of a Vibro Sifter is centered around **vibratory motion** that separates materials based on size. Here's an overview:

1. **Material Loading:** Powder or granular material is fed into the top of the sifter, typically via a hopper or enclosed system.
2. **Vibration Generation:** The vibratory motor generates high-frequency motion, transmitting vibrations through the screen deck.
3. **Material Movement:** Vibration causes the material to spread and travel across the screen surface, enabling fine particles to pass through the mesh while larger particles remain on top.
4. **Collection:** Screened material is collected through bottom discharge outlets, with separated oversize particles directed to a separate exit or re-processing loop.

This process enables **precise particle separation, removal of agglomerates and foreign matter**, and preparation of material batches for blending, compression, coating, or packaging. (Fabon Pharma)

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5. Applications in the Pharmaceutical Industry

Vibro Sifters are used in many pharmaceutical processing stages where **particle size control and purity** are essential:

5.1 Screening of Raw Materials

Before formulation, raw powders and excipients are sieved to **remove contamination**, large particles, and agglomerates, ensuring consistent input quality for blending or granulation. (Fabon Pharma)

5.2 Post-Granulation Screening

After granulation and drying, materials are screened to remove **oversized granules, fines, or lumps** that could impair tablet compression or capsule filling. (Fabon Pharma)

5.3 De-dusting and Tablet/Capsule Cleaning

Vibro Sifters can also be used for **de-dusting finished tablets and capsules**, reducing powder residue on products before inspection and packaging. (Fabon Pharma)

5.4 Particle Size Uniformity for Downstream Processes

Achieving the correct particle size distribution improves **flow properties, compressibility, and blend homogeneity**, enhancing tablet uniformity, dissolution profiles, and overall product performance. (Fabon Pharma)

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6. Applications Outside Pharmaceuticals

While critical in drug manufacturing, Vibro Sifters are also used across many industries:

6.1 Food & Beverage Processing

- Screening flour, sugar, salt, and spices for impurities and uniform particle size.
- Dairy powder grading and ingredient sieving in nutritional products. (Fabon Pharma)

6.2 Chemical & Industrial Powders

- Grading pigments, resins, fine chemicals, and powder blends before packaging or further processing. (Fabon Pharma)

6.3 Cosmetics & Personal Care Products

- Grading talcum powders, cosmetic pigments, and herbal powders to ensure consistent texture and performance. (Fabon Pharma)

6.4 Nutraceuticals & Supplements

- Sieving protein powders, herbal extracts, and micronutrients to improve formulation uniformity and product quality. (Fabon Pharma)

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7. Technical Specifications & Capacity

Fabon's Vibro Sifters are engineered to support a range of production volumes, with specifications such as:

- **Capacity range:** from small research units (~50 kg/hr) up to several thousand kg/hr depending on mesh size, configuration, and material characteristics.
- **Screen sizes:** 400 mm to 1500 mm (16" to 60") with single, double, or triple deck options.
- **Mesh range:** 8 mesh to 325 mesh for fine to coarse particle grading.
- **Vibration frequency:** Adjustable using VFD for tailored screening intensity.
- **Motor range:** 0.25 HP to 3 HP based on throughput requirements.
- **Low noise operation:** Designed for safe facilities (<75 dB). (Fabon Pharma)

These specifications make Vibro Sifters suitable for **lab, pilot, and full-scale production** environments. (Fabon Pharma)

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8. Advantages of Using Fabon's Vibro Sifters

8.1 High Screening Efficiency

With up to **~99% screening efficiency**, Fabon's Vibro Sifters deliver accurate separation of fine powders and larger particles — improving consistency in particle size distribution. (Fabon Pharma)

8.2 Dust-Free & Hygienic Operation

The stainless-steel construction, sealed gaskets, and optional integration with vacuum systems ensure **minimal dust emission**, helping maintain clean and safe working conditions while protecting product integrity. (Fabon Pharma)

8.3 Customizability

Fabon offers options such as **multiple screen decks, varying mesh sizes, explosion-proof designs, and automation integration** to meet specific industry needs and safety standards. (Fabon Pharma)

8.4 Easy Cleaning & Maintenance

Quick-release screen clamps and hygienic design enable fast changeovers and simple cleaning — critical for facilities producing multiple products or changing batches frequently. (Fabon Pharma)

8.5 Low Noise & Smooth Operation

Quiet vibration systems and sound-dampening design contribute to better working environments and reduced fatigue for operators. (Fabon Pharma)

8.6 Wide Industry Suitability

Whether for pharmaceuticals, food, chemicals, cosmetics, or nutraceuticals, Vibro Sifters are applicable wherever **material grading and impurity removal** are required. (Fabon Pharma)

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9. Installation, Operation & Safety

9.1 Site Preparation and Installation

A stable, **level foundation** with adequate space for material feed and discharge is recommended. Proper electrical supply and vibration isolation mounts help ensure efficient operation and minimal transmission of vibration to adjoining equipment.

9.2 Safe Operation

Operators should follow guidelines such as:

- Verifying secure screen installation before operation.
- Ensuring feed material is within specified moisture and particle size ranges.
- Using guards and covers for moving parts to prevent accidents.

9.3 Maintenance Best Practices

Routine tasks include:

- Cleaning screens and mesh after batches.
- Checking vibration motors and springs for wear.
- Ensuring seals and gaskets remain intact to prevent dust leaks.

Regular maintenance helps preserve performance and extends the service life of the sifter. (Fabon Pharma)

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10. Selection Criteria

When selecting a Vibro Sifter, manufacturers should consider:

- **Required capacity (kg/hr)** and production volume.
- **Mesh size and deck configuration** based on desired particle separation.
- **Material properties** (density, moisture, flow characteristics).
- **Compliance needs** (GMP, FDA, explosive atmospheres).
- **Integration with existing processes** (feed systems, dust extraction, automation).

Choosing the right model ensures efficient screening and reduces bottlenecks in production. (Fabon Pharma)

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11. Regulatory & Compliance Considerations

Fabon's Vibro Sifters are designed to comply with **cGMP and industry hygiene standards**, which include:

- **Stainless steel construction** for corrosion resistance and cleanliness.
- **Smooth, polished contact surfaces** for effective cleaning and sanitation.

- **Documentation support** for qualification and validation (IQ/OQ/PQ) where needed.
- **Optional explosion-proof configurations** for handling combustible powders safely. (Fabon Pharma)

These features help manufacturers meet regulatory expectations during audits and inspections.

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12. Case Studies & Real-World Use

While specific customer stories are proprietary, Vibro Sifters are widely adopted in:

- **Pharmaceutical production lines** — for API powder screening, excipient grading, and blend polishing.
- **Food ingredient processing** — sieving flours, spices, and dry mixes.
- **Chemical plants** — classifying additives, pigments, and fine chemicals.
- **Cosmetics manufacturers** — ensuring powder uniformity for makeup products. (Fabon Pharma)

Across industries, Vibro Sifters help improve product quality, reduce waste, and optimize production workflows.

Conclusion

The **Vibro Sifter by Fabon Pharmatech Pvt Ltd, Nashik** is a **precision screening solution** built to meet the diverse needs of pharmaceutical, food, chemical, cosmetic, and nutraceutical manufacturers. Its combination of **high screening efficiency, hygienic design, dust-free operation, customization options, and regulatory compliance** makes it indispensable for ensuring consistent particle size distribution and impurity removal — key drivers of product quality and manufacturing efficiency. (Fabon Pharma)

From **pre-screening raw materials** to **removing oversized particles**, **enhancing flow properties**, and **supporting downstream processing**, the Vibro Sifter stands as a reliable, versatile, and performance-oriented machine in modern industrial processing. (Fabon Pharma)

For detailed specifications, customization options, and inquiries, visit the official product page: **https://fabon-pharma.com/product/vibro-sifter/**. (Fabon Pharma)

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